



Best Management Practices for Pork Production

What are Best Management Practices?

Best Management Practices or BMPs refer to operating techniques and good housekeeping principals for reducing and preventing environmental problems. The overall philosophy behind BMPs is to conduct everyday activities in a more environmentally sound manner. By using BMPs, a facility can help protect the environment, save money, and improve community well-being all at the same time.

Why should I implement Best Management Practices?

Swine operations have a number of sources that can potentially generate odors or pollute ground water or surface water resources, including:

- the hogs themselves
- open feed lot operations (uncontained runoff which is collected in a settling basin and holding pond)
- spilled feed
- confinement operations (confinement buildings, manure collection systems, storage systems, livestock manure handling facilities, or lagoon treatment system)
- dead animal disposal
- land application of manure

Odors from pork production emanate from decomposition of livestock manure, from spoiled feed and from dead animals. Livestock manure is the most significant and consistent odor source.

BMPs can help pork producers comply with environmental requirements and improve their performance over the longterm. Most BMPs are based on common sense and some can be implemented quickly and at low cost, through simple changes to general housekeeping procedures or in-house process changes.

How can I implement Best Management Practices?

The purpose of this factsheet is to help pork producers identify BMPs that will improve their operations and reduce the potential for generating odors and release of contaminants to ground water and surface water resources. Because each facility is unique, not every practice may be suitable. Each suggested BMP will need to be judged on a case-by-case basis, taking into account the conditions, operations and limitations of each facility. Pork producers are encouraged to individualize the BMPs to their operations and site conditions, and to develop their own solutions for preventing pollution.

The BMPs listed below are divided into four categories, covering a specific operation or management task: grounds, buildings, lagoons, settling basins and holding ponds, and land application.

Grounds - BMPs involving the grounds at pork production facilities are basically common sense and being considerate of your neighbors. Below are examples of BMP activities that you may be able to implement at your facility:

- locating the facility as far as possible from surface water bodies

- locating the facility in an area with sufficient soil drainage
- having wind breaks and buffer strips around the facility
- diverting rain water away from areas where it could become contaminated
- maintaining proper gravel cover and landscape gradient so that water does not stand in access roads and around the production facility
- scraping away manure in open feed lots to reduce buildup of solids and to control odor and fly production
- collecting runoff from lots through settling basins for subsequent land application
- immediately loading manure into a manure spreader and directly applying to the field
- removing spilled feed promptly
- keeping feeder equipment in good repair
- keeping watering devices in good repair

Buildings - Routine maintenance and good housekeeping practices are the two easiest ways to prevent pollution in buildings. Some ways that you can use BMPs in buildings are:

- constructing interior surfaces with smooth materials to reduce dust and grime accumulation and facilitate cleaning
- maintaining adequate ventilation in the building to prevent buildup of dusts, gases, moisture and heat
- preventing liquids from collecting under animals and watering equipment by using slotted floors or other technologies
- repairing leaking water lines immediately
- maintaining clean and dry buildings
- installing an underfloor ventilation system in confinement buildings where below floor manure storage is used
- using a power washer when hosing down walls, dividers and floors in order to reduce water usage
- covering feeders and extending feed downspouts to minimize dust
- scraping off or flushing away manure in confinement areas on a frequency which is adequate to minimize odors
- covering sumps at lift stations
- pumping manure from accumulation areas to storage areas on a frequency which is adequate to prevent odors and overflow

Lagoons, settling basins and holding ponds - Undersized or poorly designed lagoons, settling basins and holding ponds can cause pollution. Below are some examples of ways to improve your lagoons, settling basins and holding ponds:

- locating lagoons, settling basins and holding ponds away from valleys which can trap odors in low lying areas
- constructing lagoons, settling basins and holding ponds so that wastes do not overflow or leach into groundwater and so that odor is minimized
- covering the lagoon, settling basin or holding pond to reduce surface odors being released
- adding aeration
- pumping or draining manure to a lagoon in small enough quantities to avoid slug loadings, maintaining a stable microbial population within the lagoon
- maintaining sufficient storage capacity to prevent overflow of lagoons, settling basins and holding ponds
- using a pump and a solids separator to lower solids loading
- removing sludge from the primary lagoon frequently enough to prevent overloading or carryover of solids to a second stage lagoon
- equipping lagoons and holding ponds with a free board gauge that shows when it is time to pump out and land apply supernatant, preventing overflows
- dewatering lagoons only down to the minimum treatment volume level as indicated on the lagoon marker
- filling new or emptied lagoons with water to the minimum treatment level before manure is introduced

Land application - Manure as a fertilizer can be environmentally beneficial. However, there are additional opportunities for reducing pollution when applying the manure to the land. Some examples of BMPs in land application practices are:

- developing a manure management plan
- scheduling application times that are compatible with crop rotations
- having sufficient land available to land apply during various times of the year so that the rate of application will be at or below agronomic rates
- applying manure early in the morning until early afternoon
- applying manure on days with low humidity and little or no wind
- applying manure at a site remote from neighboring residences if manure is not injected or immediately incorporated into the soil
- applying manure on land which is not frozen or snow-covered
- preventing contaminated runoff by not applying manure to land which is saturated or contains ponded water
- preventing contaminated runoff by not applying manure near a creek or river
- preventing contaminated runoff by not applying manure during precipitation or when precipitation is imminent
- injecting manure
- determining the necessary application rate and properly calibrating your equipment
- using injection equipment which leaves crop residue intact and creates a level surface to plant crops without further tillage
- applying liquid wastes at low pressure with little agitation if spreaders or sprayers are used to land apply
- fixing leaks in over-the-road manure hauling equipment and cleaning tillage equipment used to incorporate manure if travel on public roads is necessary

How do I get more information or assistance?

The Illinois EPA will work cooperatively with pork producers to find practical and cost-effective solutions to the environmental issues addressed using BMPs.

For general information contact:

Illinois EPA (www.epa.state.il.us)

Office of Associate Director

888-372-1996

or email your questions to cafo@epa.state.il.us

University of Illinois (www.extention.uiuc.edu)

Extension Service

217-333-5900

For permitting questions contact:

Illinois Department of Agriculture (www.ag.state.il.us)

Bureau of Environmental Programs

217-785-2427

Illinois EPA (www.epa.state.il.us)

Bureau of Water

Watershed Management Section

217-782-3362